

## MOBILE BULLETPROOF PERSONNEL SHIELD

### 1    BACKGROUND OF THE INVENTION

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3            The present invention generally relates to a  
4 mobile bullet resistant personnel shield and  
5 especially to a hand maneuverable wheeled bullet  
6 resistant shield for use by security forces, police,  
7 militia and by the military to protect individuals  
8 from gunfire.

9            Police and security forces all over the world are  
10 confronted with the problem of controlling crowds and  
11 demonstrations which at times become violent. The  
12 military is faced with protecting military personnel  
13 from bullets and shrapnel while in exposed positions.  
14 Wars, insurrections, riots, and police actions of  
15 various kinds often involve small arms fire and  
16 projectiles in which people are often injured or  
17 wounded while in an exposed position. Security forces  
18 typically have at their disposal helmets, billy  
19 sticks, and hand-held protective shields. These have  
20 not always been found satisfactory when crowds become  
21 very large or exceedingly aggressive and throw  
22 objects, such as bottles and stones, and in the face  
23 of shots from small arms. Police and militia often  
24 also are faced with buildings having one or more  
25 individuals having small arms taking refuge in the  
26 buildings and are required to cross an open area to  
27 approach the building.

28            In the past, there have been a number of designs  
29 for portable shields having gun ports and the like  
30 which could be used to provide an offensive or  
31 defensive stronghold that could accommodate several  
32 people and protect such people from gunfire at least  
33 from a frontal direction. Some examples of these type

1 of shields can be seen in the following U.S. Patents:  
2 Chaires No. 4,245,546; Zevuluni et al., Patent No.  
3 4,781,101; Loeser, Jr., Patent No. 2,209,654; Korn,  
4 Patent No. 1,308,286; Hack, Patent No. 1,253,964;  
5 Wait, Patent No. 4,192,216; Wasylowich, Patent No.  
6 1,274,645; Poniatowski, Patent No. 1,267,588; Larnell,  
7 Patent No. 1,281,400; and Clark, Patent No. 1,304,541.  
8 The invention of ballistic fiber, such as Dupont's  
9 Kevlar, made possible modern body armor that is worn  
10 by law enforcement officers and military personnel.  
11 The lives of more than 2,000 police officers have been  
12 saved by wearing soft flexible body armor that covers  
13 the torso. Type II body armor is designed to protect  
14 against 9mm, .357 magnum, and .45 Auto. Although the  
15 layers of fiber are able to prevent most bullets fired  
16 from pistols from penetrating, the impact of the  
17 projectile causes the fabric to bend inward against  
18 the body, creating blunt trauma injuries. Blunt  
19 trauma injuries in areas near vital organs can be a  
20 serious or even life threatening problem. Body armor  
21 designed to protect against higher threat levels, such  
22 as 12 gauge rifled slugs and high powered rifles, is  
23 very cumbersome and is not worn on a day to day basis  
24 by police officers. In addition to this limitation,  
25 the body armor usually worn by police officers offers  
26 no protection at all for the head, neck, arms and  
27 legs.

28 Almost every public building in America complies  
29 with handicap access laws. In the event of a  
30 terrorist threat or shooting incident, an operator  
31 using this shield will be able to rapidly and safely  
32 move throughout schools, shopping malls, government  
33 buildings or airports using existing wheelchair ramps.

1 It will also be possible to travel in elevators to  
2 secure buildings floor by floor. We are not aware of  
3 any other design that offers such a high degree of  
4 protection and mobility. The handheld shields used by  
5 SWAT teams are mobile, but offer no protection from  
6 attacks on either side, overhead or from frontal  
7 attacks to the legs. Currently, there is a huge gap  
8 between these handheld shields, and heavy, massive  
9 armored vehicles that can not move through a small  
10 alley, a wooded area, between parked cars or enter a  
11 building. The shield does not use any type of motor  
12 or electronics and so is reliable and requires very  
13 little maintenance.

14 The device described herein uses ballistic fabric  
15 stretched over a light metal frame on wheels. This  
16 arrangement is highly mobile, offers head to toe  
17 protection and eliminates the problem of blunt trauma.  
18 This design has several distinct advantages. Unlike  
19 other designs that employ curved metal, the ballistic  
20 fabric covering will not cause bullets to ricochet off  
21 the surface, an extremely dangerous situation.  
22 Another advantage is that ballistic material is  
23 resistant to fire. The shield will provide  
24 considerable protection against burning debris.  
25 Perhaps most important, the lightweight and large  
26 wheels will allow the operator to move at running  
27 speed across parking lots, down narrow alleys and even  
28 inside buildings, such as shopping malls, schools, and  
29 airport terminals. Because there are only two wheels  
30 that move independently of each other, the shield has  
31 a zero degree turning radius.

32 This invention relates to improvements in mobile  
33 shields for protection against gunfire, shrapnel and

1 other projectiles which use a ballistic fabric  
2 stretched over a light metal frame and wheels.

3

4 SUMMARY OF THE INVENTION

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6 A mobile personnel gunfire shield apparatus has  
7 a frame having base, top, front, and side portions.  
8 A pair of large wheels are attached to the frame base  
9 with a wheel axle. A plurality of sheets of flexible  
10 ballistic shield material, such as woven Kevlar, is  
11 removably attached to the frame to cover the front and  
12 top and at least two sides. A transparent bullet  
13 resistant window is mounted to the frame front and one  
14 or more bullet resistant windows are added to the top  
15 of the frame and surrounded by sheets of flexible  
16 ballistic shield material. A movable gun mount is  
17 mounted to the frame front adjacent the window mounted  
18 therein and has a gun having a barrel removably  
19 mounted thereto, such as with a pair of clamps, with  
20 the barrel extending through an opening in the front  
21 sheet of flexible ballistic shield material. The  
22 mobile personnel gunfire shield allows a person to  
23 move the gunfire shield while protecting the occupant  
24 from gunfire and simultaneously allows the operator to  
25 operate a gun from thereinside. A flexible skirt  
26 extends below the frame base to protect the wheels and  
27 feet of a person therein. The frame also includes a  
28 pair of kickstands which holds the gunfire shield in  
29 position when positioned. The gun mount may have a  
30 plurality of gun mounting clamps thereon for movably  
31 clamping a rifle or the like to the gun mount and is  
32 mounted on a universal mount for aiming and firing the  
33 gun. The operator can use the gun mount to push the

1     gunfire shield while maintaining his position for  
2     aiming the gun.

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4     BRIEF DESCRIPTION OF THE DRAWINGS

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6             Other objects, features, and advantages of the  
7     present invention will be apparent from the written  
8     description and the drawings in which:

9             Figure 1 is a perspective view of a mobile  
10    gunfire shield in accordance with the present  
11    invention;

12            Figure 2 is a rear sectional view showing the  
13    inside of the mobile gunfire shield of Figure 1;

14            Figure 3 is a side sectional view of the mobile  
15    shield of Figure 1 having an individual using the  
16    shield;

17            Figure 4 is another sectional view of the mobile  
18    personnel shield of Figures 1-3; and

19            Figure 5 is a sectional view of the mobile shield  
20    of Figures 1-4 in a backward tilted position.

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22     DESCRIPTION OF THE PREFERRED EMBODIMENT

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24            Referring to the drawings Figures 1-5, a mobile  
25    personnel gunfire shield 10 is illustrated having a  
26    framework 11 which may be formed of any satisfactory  
27    material desired, such as steel or aluminum. The  
28    frame is supported on large front wheels 12 to allow  
29    the frame to be rolled by an individual 13. The frame  
30    supports a flexible ballistic shielding material 14 on  
31    the sides thereof and shielding material 15 on the  
32    front. The shielding material also covers top areas  
33    16 and 17. The flexible shielding material can be a

1 woven Kevlar or similar polymer shield material  
2 commonly used in bulletproof vests and is loosely  
3 attached to the metal frame 11 so that when a  
4 projectile, such as a bullet, hits the material 14 and  
5 15, the material stops the projectile. The material  
6 is spaced from the individual which allows the fabric  
7 to move or give during the dissipation of the energy  
8 from a projectile. A bulletproof glass or polymer  
9 window 20 is also mounted in the shield 10. There is  
10 also an angled bulletproof top window 21. The bullet  
11 resistant glass 20 can slide horizontally in a metal  
12 track without exposing an opening. If there is a  
13 direct hit, a small portion of the glass will become  
14 opaque, preventing sighting of the gun. The operator  
15 can easily slide a clear area in front of the scope.  
16 The frame includes a bottom rail 22 along with  
17 vertical supporting posts 23 and a top side rail 24.  
18 The bottom side rail 22 has a hinge 25 with a hinged  
19 bottom rail 26 attached thereto. The hinged rail 26  
20 allows the operator to tilt the shield backward in  
21 order to shoot up at a target, such as a gunman on the  
22 second floor of a building. Bicycle type kickstands  
23 29, one on each bottom rail, allow the shield to  
24 remain in a level resting position. In the case of a  
25 stand-off that lasts for hours, the operator will have  
26 his hands free to use binoculars or a two-way radio.  
27 In an instant, the shield can be pushed forward,  
28 causing the kickstands to snap up against the bottom  
29 rail. A pair of axle supporting brackets support a  
30 pair of journals 27 which support the axle 28 and the  
31 wheels 12. The axle 28 is the balance point of the  
32 shield. Weights can be attached to a shelf area  
33 between the axle and the front bottom rail to balance

1 the shield. In this way, the back end of the shield  
2 will not need to be lifted because it will be  
3 perfectly balanced. The wheel support 27 is  
4 adjustable to move the wheels and axle up and down to  
5 vary the height of the frame by moving the axle in  
6 slots 30 within the journal members 27. The frame 11  
7 also includes top frame members 31 and front frame  
8 members 32.

9 A gun mounting system 33 has a horizontally  
10 extending gun supporting bar 34 having a locking ball  
11 joint 35 having a locking handle 39 connecting to a  
12 push rod support 36. The bar 34 has a push rod handle  
13 37 for pushing the entire mobile shield 10 by the  
14 occupant 13. A pair of gun supporting brackets 38 are  
15 mounted to the gun supporting and push rod bar 34  
16 which mounts a gun 40 thereto extending through an  
17 opening 41 and which may have an optical telescope 42  
18 attached thereto for firing by the occupant 13. Rear  
19 supporting frame members 43 support the rear of the  
20 mobile shield. The Kevlar or bulletproof shield  
21 material 14 and 15 may be extended 44 to just above  
22 the surface 45. When the kickstands 29 are down or  
23 when the shield is in the extreme backward tilted  
24 position, the operator can release the knob 39 and  
25 freely move the gun, together with the gun supporting  
26 bar 34, without moving the entire shield. For  
27 example, the operator could drop to one knee, release  
28 the knob 39, and aim the gun at a steep upward angle,  
29 or pan the gun from left to right while the shield  
30 remains stationary.

31 The mobile shield is shown in Figure 5 at rest  
32 having a gun 40 mounted to the gun supports 34 and in  
33 Figure 3, an occupant 13 is using the mobile shield 10

1 as he moves forward having visibility through the  
2 bulletproof glass window 20 and having the gun  
3 extending through the opening 41. The occupant 13  
4 lifts the rear of the shield 10 to push the shield on  
5 wheels 12. The large wheels are especially effective  
6 in moving a large mobile shield and readily move over  
7 debris or uneven surfaces. The tires on the wheels  
8 may be of a bulletproof nature, such as a solid rubber  
9 rather than a balloon tire, even though the wheels are  
10 shielded by the bulletproof shielding material 14 and  
11 15.

12 The occupant 13 can move in on riots, mobs, armed  
13 fugitives or the like and can move into buildings  
14 where armed fugitives are holding out and can return  
15 fire from one end of the protective shield system 10  
16 with the rifle 40. The shield is made lightweight by  
17 the use of a frame and polymer shielding material,  
18 such as used in bulletproof vests. Being mounted away  
19 from the occupant 13 allows space for the flexible  
20 shielding material 14 and 15 to give or flex and  
21 dissipate energy without harming the occupant 13 as  
22 would be the case with a bulletproof vest. The mobile  
23 shield 10 is easily loaded onto a vehicle and carried  
24 from one site to the next as needed by the police,  
25 militia, or military.

26 It should be clear at this time that a mobile  
27 personnel shielding device for shielding against small  
28 arms fire, shrapnel and other projectiles has been  
29 provided which has a metal frame covered with Kevlar  
30 or other flexible polymer bullet resistant material  
31 and which can be rolled on large wheels. A gun  
32 attached to the push rod can be manipulated and fired  
33 out of a small opening and there are several plates of



1 bullet resistant glass on the front and sides.  
2 However, the present invention should not be construed  
3 as limited to the forms shown which are to be  
4 considered illustrative rather than restrictive.